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ABSTRACT

The structure of U.S. congressional support for college student financial aid during the 96th and 97th Congresses was assessed. Senators' roll call votes on student aid legislation were analyzed, using factor and discriminant analysis. Using a content-free classification scheme, attention was directed to whether voting patterns were policy-determined, ideology-determined, or determined by other factors. The following questions were addressed: (1) whether relationships among given coalitions of senators were altered by changes in the political scene between the 96th and 97th Congresses; (2) whether senators present in both the 96th and 97th Congresses appeared in the same coalitions in each Senate; (3) whether constituent groups found individual senators within coalitions voting similarly in both Congresses; (4) whether coalition voting behaviors in both Congresses were distinguishable within and across policy dimensions; and (5) whether coalitions collaborate and/or compete to influence legislation. Constituency support was measured by averaging lobbyists' ratings of individual senators across coalitions. A distinct pattern of four differentiated multi-issue Senate coalitions emerged that were closely associated with political parties, two with each party. (SW)



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Program Report 85-7

# COALITIONS IN THE SENATES OF THE 96TH AND 97TH CONGRESSES AND THEIR TREATMENT OF STUDENT AID

by

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ABSTRACT

This study explores the structure of Congressional support for higher education student aid. Most studies explore voting alignments by examining the content of the votes and searching for underlying patterns. This study takes the opposite approach. Factor and discriminant analysis are used to identify voting patterns in the Senates of the 96th and 97th Congresses using a completely content-free classification scheme. This avoids any a priori classification according to policy or ideological dimensions. The characteristics of the patterns that emerge are then examined to determine whether they are policy-determined, ideology-determined or determined by some other factor(s). Four clear coalitions are found when all highly contested votes are analyzed together. These continue to a large extent from the 96th to the 97th Congress--spanning the election of 1980--and are consistent in their treatment of student aid. They operate below the level of party and persist across policy dimensions and geographic region. They can be arrayed across the liberal-conservative spectrum, generally supporting Schneider's thesis of undimensionality.

# I. INTRODUCTION/BACKGROUND

This study was motivated by curiosity over behaviors within the U.S. Congress that explain the treatment of legislation pertaining to student aid for higher education. Specifically, we wanted to identify the principal parties involved in shaping such legislation and to assess the stability of political support for student aid during a period of change. States and institutions play important roles, but student aid is mainly a Congressionally sponsored activity. Thus, it is important to understand the structure of its support.

The purpose of this study was and is to analyze the roll call votes of Congressmen (specifically U.S. senators) in order to identify those behavior patterns which best explain the formation and content of student aid legislation. A review of the literature pertaining to our topic revealed a virtual absence of structurally oriented roll call studies focusing on the treatment of specific issues. Instead we found debate centering on a more remote question. That is, which single factor, ideology or issue classification, best explains overall voting behavior.

We also found a near absence of analytical procedures allowing basic voting patterns to emerge directly from the data without being conditioned by prior judgement on the part of researchers. Because of this we felt free to apply an original approach and to explore its explanatory utility. Consequentially, our findings not only provide new insights into the treatment of student aid but also address the more fundamental debate over basic determinants of voting behavior.

We begin by reviewing the history of student aid and associated legislation. This is followed by a review of the literature on voting behaviors. We then describe our methodology and findings. We conclude by assessing the stability of support for student aid and the implications of our research for current interpretations of voting behavior.

## STUDENT AID

The development of federal student aid programs can retrospectively be described in terms of evolving definitions of a problem. During the 1950s and 1960s, scholars articulated a problem affecting access to higher education that was societal in scope. Wolfle (1954) and later authors found that large numbers of academically qualified young people were unable to attend college because of financial barriers. Denison (1962) added political weight to this problem when he found education to be highly important in explaining growth in the nation's economic productivity during much of the twentieth century. Also, economists associated with the Human Capital Movement which emerged during the 1960s offered student aid as a solution (Hansen, 1982). A simultaneous political development, the Civil Rights Movement, called for strong federal efforts to end discrimination and promote social mobility for economically disadvantaged minorities and others. Student aid based on demonstrated financial need was one among several strategies which offered solutions to this problem.

In 1964 President Johnson declared War on Poverty and shortly thereafter the Higher Education Act of 1965 was passed. The

centerpiece of this act was a series of need-based loan and work-study programs from which the present array of federal programs has evolved. However, a large-scale investment of federal dollars did not commence until after passage of the Higher Education Amendments of 1972 (to the Act of 1965); during debate over the appropriate role of the federal government in financing higher education, another influential factor emerged--studies predicted the demise of private colleges and universities (Gladieux & Wolanin, 1976; Stampen, 1980).

By 1973, the federal government was investing $933 million in student aid programs benefiting financially needy students attending public, private and proprietary institutions. By 1983 the annual investment in need-based student aid had increased to over $6 billion. This amount was further expanded by state and institutionally based student aid programs, as well as by revolving National Direct Student Loans and federally subsidized private loans (i.e., Guaranteed Student Loan program). The net effect of all sources of aid (nine out of ten dollars being available through federal programs) was that $6.6 billion went to students attending only public colleges and universities in 1981-82 (Stampen, 1983).

The election of President Reagan and the emergence of a Republican majority in the U.S. Senate created the possibility of major changes in federal student aid programs. During his campaign, Candidate Reagan, in line with what became known as the New Federalism, advocated elimination of student aid's principal administrative agency, the U.S. Department of Education, and the

reassignment of responsibility for many programs affecting education to the states.

Student aid was a controversial issue in both the 96th and 97th Congresses. There were only three votes on bills or amendments concerning student aid in the 96th Senate, and one of the three received majority support. In the 97th Senate, four out of the five votes on student aid were opposed by a majority (see Table 1). All but the last of the five votes occurred during the first session in 1981.

Actions in the Senate suggest less opposition to student aid than indicated by the previously described votes. Even though aid to education was a controversial issue during the 96th Senate, the Guaranteed Student Loan program was substantially expanded; the 97th Senate began with large cuts in student aid programs, but some of the funds were later restored; and as time passed there was growing support among both Republicans and Democrats for maintaining the programs.

The Guaranteed Student Loan program excepted, the net impact of these changes was that from 1980 to 1983, funding for student aid programs administered by the U.S. Department of Education declined from $3.7 billion to $3.6 billion. During the same period, funding for Guaranteed Student Loans increased from $1.9 billion to $3.1 billion. The largest cut in federal aid for students resulted from the phase-out of the Social Security benefits for dependent college students, which in 1980 totaled $1.6 billion, but by 1985 will be eliminated. These changes were by no means negligible, particularly

Table 1

Summary U.S. Senate Votes on Student Aid Bills

| Bills | Votes Yes | Votes No |
|---|---|---|
| 96th Senate | | |
| 1) S. 1839: Amend Higher Education Authorization: Pell Grants | 24 | 71 |
| 2) S. 1839: Amend Higher Education Authorization by recapturing the interest subsidy paid for students | 56 | 41 |
| 3) H.R. 5192: Adopt conference report authorizing funds through 1984 for Higher Education Programs for the Department of Education | 43 | 45 |
| 97th Senate | | |
| 4) S.C.R. 9: Amend the resolution by restoring Pell Grant funds | 50 | 67 |
| 5) S.C.R. 19: Amend resolution to reduce funding for water projects, transporation, and guaranteed student loans | 30 | 55 |
| 6) S. 1377: Amendment to provide changing funding levels for higher education programs | 63 | 37 |
| 7) H.J.R. 357: Amendment to increase funding for Pell Grants and Supplemental Education Opportunity Grants | 38 | 59 |
| 8) S.C.R. 92: Amendment to restore Elementary and Secondary Education Act, handicapped and vocational education programs, headstart, and Pell Grants | 44 | 54 |

if one adds in the effects of inflation. However, in the context of what many feared would result from President Reagan's campaign promise to abolish the U.S. Department of Education and to transfer many educational programs back to the states, the changes were less than revolutionary. Curiosity over how this came to be motivated our investigation of the U.S. Senate.

## ANALYSES OF VOTING BEHAVIOR

Voting behavior in legislative bodies has been the focus of substantial research. Studies typically focused on one of three areas (Collie, 1984): party politics (interparty conflict, intraparty cohesion), cleavages or alignments associated with substantive issues or policies; and behavior patterns of individual legislators. This study fits into the second category, following a research tradition that started with a focus on how voting behavior was associated with specific issues such as civil rights, agriculture, tariffs, or foreign policy (see, for example, MacRae, 1958, 1965, 1970; and Lowi, 1964, 1970, 1972). These early studies were followed by efforts to find more general patterns, from which two major interpretations seem to have emerged.

The first is attributable to Aage R. Clausen and colleagues (Clausen, 1967, 1973, 1974; Clausen & Chaney, 1970; Clausen & Van Horn, 1977). In a series of studies of Congressional roll call votes from the 1950s to the 1970s, these researchers identified five recurring policy dimensions, each characterized by unique voting alignments persisting over time. The dimensions are: civil

liberties, public welfare, government management, agricultural assistance, and international involvement. Other factors (such as party membership, regional coalitions, or presidential influence), according to this research, failed to provide such consistent or enduring patterns. From this Clausen developed the thesis that legislators typically decide how to vote after forming opinions about central issues within individual policy dimensions, and that there was no reason to expect voting alignments to be similar <u>across</u> policy dimensions. In his words, "different alignments form as policy content changes" (Clausen, 1973, p. 31).

The second major interpretation is the work of Jerold E. Schneider. In a 1979 study of congressional voting between 1971 and 1976, he found evidence of a single liberal-conservative division across several policy dimensions. This, combined with suggestive evidence of two or possibly three persisting coalitions of legislators, led him to the conclusion that ideology influenced voting behavior in a systematic way. Schneider's more recent work (1984) further supports his 1979 argument, finding a consensus among a variety of recent analyses[1] indicating that voting is polarized by a single liberal-conservative division cutting across multiple categories of issues, including Clausen's five policy dimensions.

Not all analysts have reached such clear conclusions as those of Clausen and Schneider. Sinclair (1977, 1978), for example, found recurring dimensions like Clausen's, but she also noted that during periods of fundamental realignment the dimensions themselves may change or at least be interrupted. Smith (1981), studying the U.S.

Senate between 1957 and 1976, found increasing consistency over time within individual dimensions--arguing for the importance of Clausen's position. But he also found, for the later part of the period only (the period of Schneider's 1979 study, interestingly), a trend toward ideologically patterned voting alignment which persisted across dimensions.

Previous studies of voting behavior share one attribute that may make definitive conclusions about voting alignments difficult. They approach the issue by examining the content of the votes and, with that as their basis, look for underlying patterns. The approach taken in this study is to do the reverse, identifying voting alignments using a completely content-free classification scheme. This allows us to avoid any a priori classification according to policy or ideology dimensions--which can be expected to obscure any voting patterns which cut across the dimensions chosen. To the extent that patterns emerge, examination of their characteristics will allow us to determine the extent to which they are policy-determined, ideology-determined, or determined by some other factor(s).

## II. METHODOLOGY

Our methodological approach had two basic steps. First, we explored the existence of identifiable groups of senators as defined by their voting patterns. Second, we examined the characteristics of the groups along several dimensions to determine whether they constitute identifiable and durable coalitions.

### QUANTITATIVE ANALYSIS OF VOTING PATTERNS[2]

Our intent in this part of the analysis, as noted, was to classify senators by their voting behavior, without prejudging the content of the issues on which they voted. To do this, we used the position of each senator on all highly contested roll call votes in the 96th and 97th Senates. (We defined highly contested votes as those in which at least 18 percent of the senators voted against the majority.) There were 39 such votes in the 96th Senate and 32 in the 97th. We chose the 96th and 97th Congresses because they precede and follow the election of Ronald Reagan to the Presidency in 1980. This period is generally agreed to be one of substantial change in the U.S. Senate, including a shift from a Democratic to a Republican majority. On the assumption that such a change disrupts voting patterns, we should see changes in our grouping between the two Congresses. To the extent that our groupings show continuity, that continuity provides positive evidence that voting alignments persist in the face of perceived political volatility. Thus this analysis may help to

resolve the "appropriate conflict" findings of the policy dimension and ideology approaches.

The factor analysis identified clusters of similarly voting senators within each senate in the following way. First, votes were coded as one of three possible responses (1 = yes, 2 = absence or abstention, 3 = no) in order to give us an interval scale.[3] Second, a similarity matrix of records was computed by correlating the votes of all pairs of senators. Third, the matrix was factored using an orthogonal three-factor principal component solution. This solution accounted for 35.5 percent of the total variance in the 96th Senate (eigenvalues F1 = 20.07; F2 = 8.81 and F3 = 6.22) and 44.1 percent of the total variance in the 97th Senate (eigenvalues F1 = 21.92; F2 = 12.92 and F3 = 9.28). No attempt was made to conceptually define the three factors. They were simply used to create an orthogonal space within which four clusters of senators could be identified. Fourth, a three-dimensional plot of senators was created using factor loadings as dimensional coordinates. (Copies of these plots are available upon request from the authors.) The proximity of senators in this representation was positively related to similarity of voting record. Finally, discriminant analysis was used on the original voting data to generate functions which differentiated between the core clusters already identified.[4] These functions allowed several previously unclassified senators to be assigned to a coalition. Eleven senators remained unassigned in the 96th Congress; six senators remained unassigned in the 97th.

ANALYSIS OF COALITIONS

In pursuing the substantive implications of the grouping identified by the factor-discriminant analysis, we built on Hinckley's (1981) concept of coalitions. She defined a coalition as a group of "mixed motive actors (individuals or groups) who work with initial resources (means by which actors can influence the behavior of others) and the rules of the game (formal or informal--as in constitutional law or legislative norms) and attempt to determine an outcome and distribute returns." To her definition of coalitions we add two other properties: their recurrence over time and their persistence across several categories of issues. For groups that possess this combination of characteristics we coin the term "multi-issue coalitions."

In more formal terms, groups that satisfy our definition of multi-issue coalitions must have the following five characteristics:

1. Change: Were relationships among given coalitions of senators altered by changes in the political scene between the 96th and 97th Congresses? Change in the relationships among coalitions was shown by discriminant function displays, which for illustrative purposes were collapsed into two dimensions.
2. Recurrence: Did senators present in both the 96th and the 97th Congresses appear in the same coalitions in each Senate? Recurrence of membership in coalitions was measured by characteristics common to member senators and was tested by

comparing actual recurrence with the level of recurrence predicted by chance.

3. Constituency: Did constituent groups find individual senators within coalitions voting similarly in both Congresses? Constituency support was measured by averaging lobbyists ratings of individual senators across coalitions.
4. Behavior: Were coalitional voting behaviors in both Congresses distinguishable from one another within and across policy dimension categories?
5. Network: Did coalitions collaborate and/or compete to influence legislation? To pursue this question we focused on a single issue in the Senate of the 97th Congress: student aid for higher education. Eleven knowledgeable observers provided accounts of key votes and committee actions affecting student aid and, without prior knowledge of coalitions or their membership, estimated the support of individual senators' for student aid.

# III. FINDINGS

## COALITIONS IN THE 96TH AND 97TH SENATES

A distinct pattern of four differentiated multi-issue Senate coalitions emerged during both the 96th and 97th Congresses. They may be readily arrayed along Schneider's left-right dimension. Furthermore, they are familiar to all political observers--so familiar, indeed, that three of the four have been labeled by the press (Davidson, Oleszek, & Davis, 1982). Here they are by political party with their labels and their defense versus domestic spending priorities:

Predominantly Republican: Yellow Jackets--at the right of the political spectrum--favoring defense/national security over domestic spending.

Gypsy Moths, more critical of defense spending and supportive of certain types of domestic spending.

Predominantly Democrat: Boll Weevils--usually from the southern states--sometimes associated with Yellow Jackets on both defense and domestic issues.

Bumble Bees (our name for them)--at the left of the political spectrum--favoring domestic over defense/national security.

CHANGE

The relationships of these Senate coalitions to one another in the 96th and 97th Congresses are shown in Figures 1 and 2, as measured by two of our three discriminant functions. As shown by Figure 1, Yellow Jackets and Bumble Bees occupy the horizontal extremes; the Boll Weevils and Gypsy Moths, the vertical. Figure 2 displays the relative positions of the same four coalitions during the 97th Congress. The principal difference between the two Senates is that the Gypsy Moths moved closer to the Yellow Jackets. Also, the gap between Yellow Jackets and Boll Weevils narrowed, while the gap between Boll Weevils and Bumble Bees widened. In the Republican-controlled Senate of the 97th Congress, the Bumble Bees were the most isolated coalition.

Note that the scale for Discriminant Function 1 is reversed in the second of the two Senates. This reflects the fact that in the Democrat-led Senate of the 96th Congress, Yellow Jackets most frequently voted no on contested bills; after Republicans assumed leadership in the 97th Senate, Bumble Bees became the leading naysayers.

RECURRENCE

Table 2 describes the four coalitions we have identified in terms of party affiliation and regional representation. As can be seen, in both Congresses the party affiliation and regional representation of the four groups are similar, although the increased polarization of the 97th Senate is apparent. Senate coalitions in both Congresses are

Table 2

Coalition Members in the Senates of the
96th and 97th Congresses
by Party Membership and Regional Representation

| | Number | Party | | | Region | | | |
|---|---|---|---|---|---|---|---|---|
| | | Rep | Dem | Ind | E | MW | S | W |
| | | 96th Senate | | | | | | |
| Yellow Jacket | 17 | 14 | 2 | 1 | 1 | 2 | 7 | 7 |
| Boll Weevil | 15 | 3 | 12 | 0 | 0 | 4 | 8 | 3 |
| Gypsy Moth | 28 | 19 | 9 | 0 | 7 | 9 | 6 | 6 |
| Bumble Bee | 29 | 2 | 27 | 0 | 10 | 8 | 4 | 7 |
| Unassigned | 11 | 3 | 8 | 0 | 4 | 1 | 3 | 3 |
| Total | 100 | 41 | 58 | 1 | 22 | 24 | 28 | 26 |
| | | 97th Senate | | | | | | |
| Yellow Jacket | 23 | 21 | 1 | 1 | 1 | 6 | 8 | 8 |
| Boll Weevil | 19 | 0 | 19 | 0 | 0 | 3 | 13 | 3 |
| Gypsy Moth | 29 | 29 | 0 | 0 | 8 | 8 | 4 | 9 |
| Bumble Bee | 23 | 0 | 23 | 0 | 10 | 6 | 1 | 6 |
| Unassigned | 6 | 3 | 3 | 0 | 3 | 1 | 2 | 0 |
| Total | 100 | 53 | 46 | 1 | 22 | 24 | 28 | 26 |

East: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

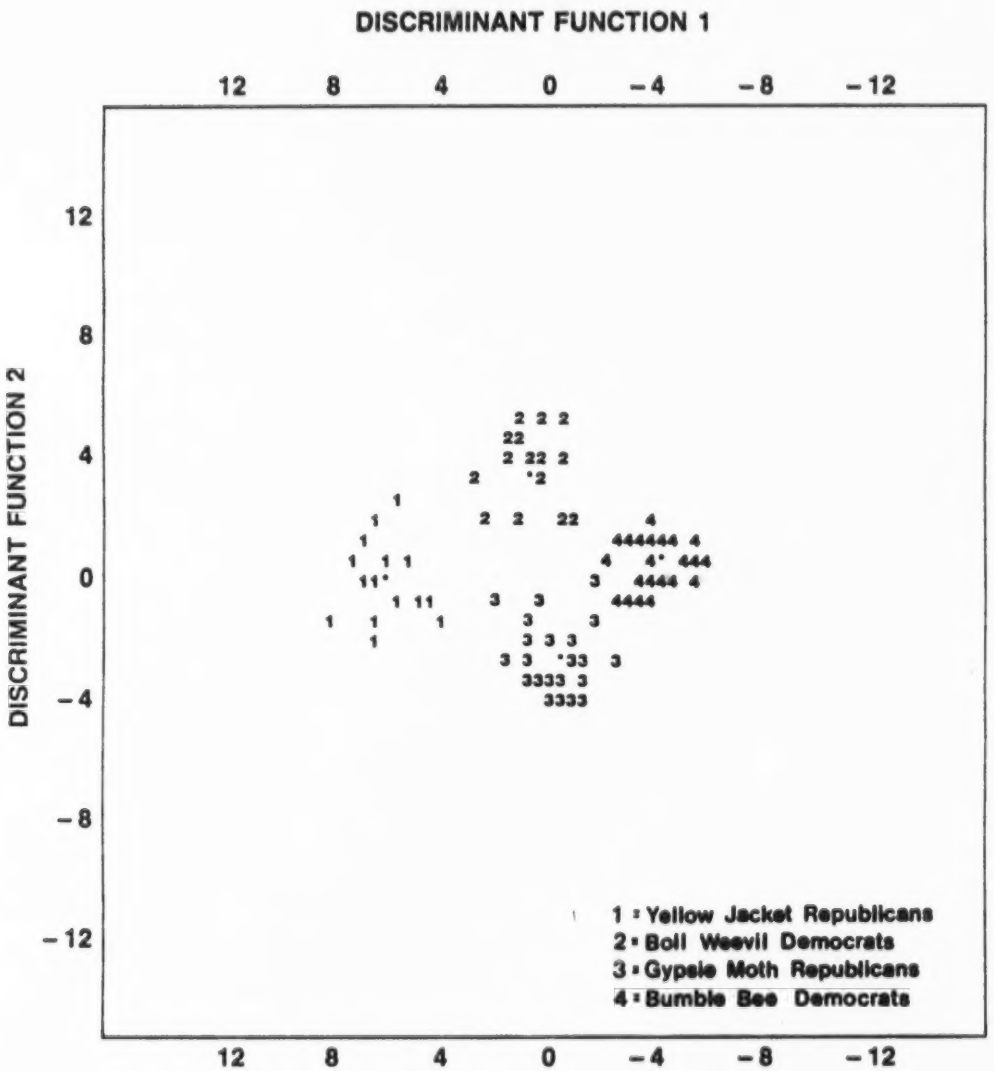
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

South: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Figure 1

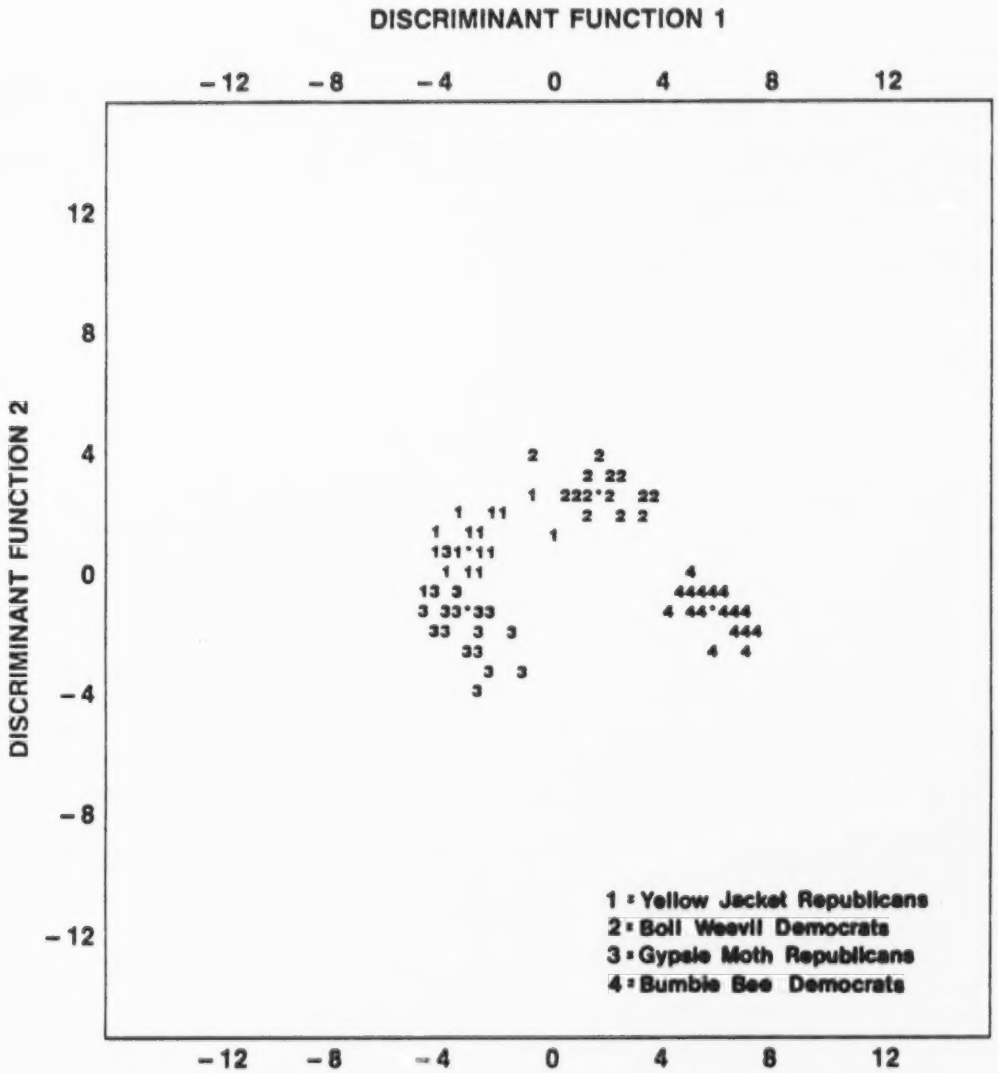
## Voting Coalitions in the 96th Senate: First and Second Sessions




Note: The discriminant function scales represent a range of discriminant scores (zero to plus 12 and minus 12). Scores were calculated for each senator on each scale which--when plotted--resulted in a territorial map of the coalitions.

Figure 2

## Voting Coalitions in the 97th Senate: First and Second Sessions




Note: The discriminant function scales represent a range of discriminant scores (zero to plus 12 and minus 12). Scores were calculated for each senator on each scale which--when plotted--resulted in a territorial map of the coalitions.

predominantly subdivisions of political parties. Even in the 96th Congress, where the Senate alignments were clearly less party-specific than in the 97th Congress, a minimum of two-thirds of each coalition were from the same political party.

Senate coalitions in both Congresses are less distinct by region than by political party. However, most have either positive or negative associations with regions. Yellow Jackets display strength in the South and West but weakness in the East and the Midwest. Boll Weevils are mainly found in the South but occur in all regions except the East. Gypsy Moths are well represented in all regions, although core members (not shown) are usually found in the East and Midwest. Bumble Bees are strongest in the East, but they are well represented in the Midwest and West and better distributed nationwide than the Yellow Jackets or Boll Weevils.

The overlap in Senate coalition affiliation across the two Congresses is shown in Table 3. Each cell in the table shows the number of senators in a particular combination of affiliations for the 96th and 97th. If all returning senators retained the same coalition in both years, the cells on the diagonal sloping down from left to right would be the only ones with nonzero numbers. As can be seen, this was not the case. However, the fact that by far the greatest numbers lie along the diagonal shows that recurrence of coalition affiliation was the rule rather than the exception. Thus, most of the returning senators retained the same coalitional membership in both Congresses. This was true for 80 percent of the Bumble Bees, 68 percent of the Gypsy Moths, 67 percent of the Yellow Jackets, and 53

Table 3

Coalitions Affiliations of 81 Senators Serving
in Both the 96th and 97th Congresses

| | 97th Congress | | | | | |
|---|---|---|---|---|---|---|
| 96th Congress | Yellow Jacket | Boll Weevil | Gypsy Moth | Bumble Bee | Unclassified | Total |
| Yellow Jacket | 10 | 2 | 5 | 0 | 0 | 17 |
| Boll Weevil | 2 | 10 | 1 | 1 | 0 | 14 |
| Gypsy Moth | 2 | 3 | 15 | 2 | 0 | 22 |
| Bumble Bee | 0 | 4 | 1 | 16 | 0 | 21 |
| Unclassified | 1 | 0 | 0 | 1 | 5 | 7 |
| Total | 15 | 19 | 22 | 20 | 5 | 81 |

percent of the Boll Weevils. Boll Weevils were also the least cohesive in their overall voting behavior, perhaps reflecting longstanding subdivisions among southern senators (Clausen, 1973, pp. 110-112).

Overall, 69 percent of the returning senators are classified into the same coalition in both Congresses (56 of 81 senators including those in the unclassified category). Assuming no relation between classification for the 96th and 97th Congresses and using statistical techniques standard for two-way tables (Rao, 1973, p. 409), we found that the number of agreements in classification expected by chance is only 22 percent. The obtained agreement is greater than the expected agreement at the .0001 level of statistical significance.

CONSTITUENCY

To examine the issue of constituency, Table 4 compares coalitions according to ratings by lobby groups in Senates of the 96th (in parentheses) and 97th Congresses.

The polarization of Yellow Jackets and Bumble Bees is the most distinctive feature in the listing of lobby ratings. Yellow Jackets averaged low agreement scores among the five ratings on the left of the table and high agreement scores among the five ratings on the right. Bumble Bees displayed an opposite pattern, and Boll Weevils and Gypsy Moths fell between the two on almost all scales.

Stability in the face of change is also suggested by Table 4. In all but a few cases, average percentages of agreement are quite similar in both Senates. In some instances, however, changes appear

Table 4

Lobbyists Ratings of the Coalitions in the 97th and 96th Senates:
Percentage of Votes in Agreement with Lobby Positions

| Coalition | Yellow Jacket Republican | Boll Weevil Democrat | Gypsy Moth Republican | Bumble Bee Democrat |
|---|---|---|---|---|
| Americans for Democratic Action (ADA) (liberal) | 9 (17) | 45 (45) | 20 (44) | 93 (74) |
| Committee on Political Action(AFL-CIO) (COPE)(labor) | 12 (15) | 51 (53) | 19 (45) | 84 (87) |
| Public Citizen (Ralph Nader) (PC) (citizens) | 22 (20) | 29 (39) | 36 (40) | 61 (69) |
| League of Conservation Voters (LCV)(environment) | 20 (22) | 36 (22) | 32 (49) | 86 (74) |
| Consumer Federation of America (CFA)(consumer) | - (6) | - (36) | - (29) | - (68) |
| National Association of Businessmen (NAB)(business) | 92 (92) | 85 (43) | 86 (53) | 50 (18) |
| National Security Index (NSI)(defense) | - (92) | - (64) | - (61) | - (16) |
| National Taxpayers Union (NTU)(taxpayers) | 63 (63) | 47 (36) | 56 (38) | 33 (17) |
| Americans for Constitutional Action (ACA) (conservative) | 74 (86) | 51 (37) | 59 (59) | 21 (15) |
| American Conservative Union (ACU) (new right) | - (89) | - (29) | - (44) | - (11) |

NOTE: Numbers appearing in each column represent the average percentage of votes in agreement with positions taken by the various lobby groups. The first numbers represent group average agreement scores during the 97th Senate; numbers in parentheses represent those agreement scores in the 96th Senate. CFA and NSI scores for the 97th Senate are not yet available.

in relationships between coalitions and some of the lobby groups. For example, with the exception of Yellow Jackets, who scored high in terms of agreement with the National Association of Businessmen in both Congresses, the 97th Congress witnessed a marked increase in that association's rating of the three remaining coalitions. Somewhat smaller increases for the three coalitions also occurred in the ratings of the National Taxpayers Union. These changes as well as a sharp decline in the ratings of the Gypsy Moths by the Americans for Democratic Action and the AFL-CIO Committee on Political Action conform with the inter-Senate realignments expressed in Figures 1 and 2.

Relationships among coalitions appearing in Table 4, shown in most of the subsequent tables and especially in the Appendix, argue in favor of Schneider's finding of unidimensionality in Congressional voting. Yellow Jackets and Bumble Bees consistently appear as polar extreme coalitions while Gypsy Moths and Boll Weevils fall in between.

BEHAVIOR

The behavior of the coalitions with respect to the policy dimensions identified by Clausen (1973) is shown in Table 5.[5] The rows in the table describe levels of agreement between given pairs of coalitions. See the Appendix for a display of coalitional voting on individual bills within policy dimensions.

As can be seen, few if any differences are discernible in voting across two of Clausen's five policy dimensions: government management and social welfare. Partisan cleavages (as reflected by traditional

Table 5

Levels of Agreement between Coalitional Pairs across Policy Dimensions

| Coalitional Pair | Government Management | | Social Welfare | | International Involvement | | Agricultural Assistance | | Civil Liberties | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 97 | 96 | 97 | 96 | 97 | 96 | 97 | 96 | 97 | 96 |
| | (20) | (20) | (5) | (3) | (6) | (9) | (2) | (1) | (0) | (5) |
| Bumble Bee-Yellow Jacket | Low | Low | Low | Low | Low | Low | - | - | - | Mod |
| Bumble Bee-Gypsy Moth | Low | Mod | Low | Mod | High | High | - | - | - | Mod |
| Bumble Bee-Boll Weevil | Mod | Mod | Mod | Mod | Mod | Low | - | - | - | Low |
| Gypsy Moth-Boll Weevil | Mod | Mod | Low | High | Mod | Low | - | - | - | High |
| Gypsy Moth-Yellow Jacket | Mod | Low | Mod | Low | Low | Low | - | - | - | Low |
| Boll Weevil-Yellow Jacket | Mod | Low | Mod | Low | Mod | Low | - | - | - | Low |

Note: Numbers in parentheses indicate number of votes.
Within the table, "Low" indicates coalitional agreement on one-third or fewer of the votes within each dimension, "Moderate" indicates up to two-thirds agreement, and "High" more than two-thirds agreement.

party labels) persist across both. With respect to the last two dimensions, agricultural assistance and civil liberties, final floor votes were either too infrequent or unevenly distributed between Senates to provide meaningful comparisons. Only with respect to international involvement is there evidence of intercoalition alignment.

## NETWORK AND STUDENT AID

The interpretive utility of coalitions when applied to a single issue is illustrated by network interactions pertaining to student aid. In the Senates of the 96th and 97th Congresses, patterns of voting on student aid bills and amendments are generally similar to voting patterns for all highly contested final bills together: polarization between Yellow Jackets and Bumble Bees in the 96th Congress, combined with more ambiguous stances by Gypsy Moths and Boll Weevils; in the 97th Congress, Yellow Jackets and Gypsy Moths consistently opposed Bumble Bees, and ambiguity once again characterized the position of the Boll Weevil Democrats.

We interviewed eleven close observers of Senate actions affecting student aid--nine governmental relations officers representing six higher education associations and two Senate staff members.[6] Our observers doubted that floor votes could fully explain senate actions in the 97th Congress. Although the first session (1981) began with cuts in several student aid programs, the observers witnessed growing opposition among both Republicans and Democrats to further cuts and some efforts to restore earlier ones.[7]

They further reported that in the 97th Congress the most important actions protecting student aid took place in committee rather than on the floor. One example is deliberation in the Senate's Labor and Human Resources Committee over the 1981 Omnibus Budget Reconciliation Act (HR 3982). There, Senators Stafford (R-Vermont) and Weicker (R-Connecticut) joined minority party Democrats, most of whom were Bumble Bees, in tempering proposed changes. The composition of this committee was such that an alliance between these senators and minority party members could determine the outcome of committee actions--as happened in several instances. For example, Senator Stafford won acceptance for a substitute amendment establishing an income ceiling for the Guaranteed Student Loan program. According to our panel of observers, this action warded off alternatives more erosive to the program. Another example occurred during deliberations over Senate Concurrent Resolution 92, the fiscal year 1983 budget bill. At that time, Senator Stafford presented a draft cosponsored by eighteen senators (including seven Republicans), who were almost all either Gypsy Moths or Bumble Bees, to the Senate Majority Leader and the Chairman of the Budget Committee. This action, according to the observers, resulted in a behind-the-scenes restoration of $300 million taken by previous amendment from the Guaranteed Student Loan program.

A different measure of coalitional networks is obtained from our observers' responses to a randomly scrambled list of all senators in the 97th Congress. The observers, who were not told about the multi-issue coalitions or their membership, were asked to state whether individual senators would agree or disagree with the following

statement: "Federal student aid programs serve an important national purpose and should be maintained at least at or near current funding levels." The results, reported in Table 6, indicate that Bumble Bees and Gypsy Moths were most frequently identified as supporters of the statement. Conversely, Yellow Jackets were most frequently identified as opponents; the positions of Boll Weevils were most often unknown.

Thus, there is both observer-supported and coalition-derived evidence (1) that the Republican senators who consistently took actions in committee to prevent major reductions in federal aid for college students were primarily Gypsy Moths and (2) that their actions were supported by Bumble Bee Democrats. However, on the student aid bills actually voted upon in the 97th Senate, a different pattern is observed. Gypsy Moths consistently sided with Yellow Jackets and against Bumble Bees. Which of the two, floor votes or committee actions, most accurately describes policy-relevant behavior? Perhaps both are equally important. On the floor, the majority party coalitions sought unity, and actual votes represent that which both Gypsy Moths and Yellow Jackets could agree upon (i.e., halting increases in appropriations for student aid). But in committee, where actions were less visible, the question was cutbacks; and there, Gypsy Moth Republicans and Bumble Bee Democrats successfully opposed the Yellow Jackets while the Boll Weevils remained largely neutral.

Neither the authors nor the on-site observers were privy to many behind-the-scenes discussions or deals. Our documentation of coalition networks is therefore incomplete. However, we do note that Senator Stafford's amendments were largely supported by Gypsy Moth

Table 6

Observers' Estimates of the Positions of Individual Senators to the Statement: "Federal Student Aid Programs Serve An Important National Purpose and Should be Maintained At Least At or Near Current Funding Levels."

| Coalition | Number | Position Estimates | | |
|---|---|---|---|---|
| | | Yes | No | Don't Know |
| Yellow Jacket Republican | 23 | 0 | 13 | 10 |
| Boll Weevil Democrat | 19 | 7 | 0 | 12 |
| Gypsy Moth Republican | 29 | 13 | 5 | 11 |
| Bumble Bee Democrat | 23 | 21 | 0 | 2 |
| Unclassified | 6 | 2 | 2 | 2 |

NOTE: A "yes" or "no" indicates that at least six of the eight responding observers agreed on the classification of an individual senator.

Republicans and Bumble Bee Democrats. We also note that the observer estimates of individual senator attitudes toward student aid accurately differentiated among coalitions supporting, opposing, or ambivalent toward student aid. Such convergence is unlikely to be coincidental, and conscious collaboration between at least two of the four coalitions seems highly probable.

## IV. CONCLUSIONS

The analytical approach used in this study essentially sorts legislators according to their voting patterns and derives meaning from the patterns that emerge. Applied to votes occurring at different times, in different settings, and in response to different issues, this method turns out to produce voting alignments of senators with important similarities. These recurring and reasonably stable alignments cannot be fully defined by political parties or regional representation. We chose to call the discovered alignments multi-issue coalitions and, with the aid of a working definition based on Hinckley's (1981), to explore their nature. These coalitions in the 96th and 97th Senates were closely associated with political parties, two with each party. They were to a large extent unidimensionally arrayed, and they persisted despite behavioral changes such as the flight of the Gypsy Moths in Figure 2.

The evidence of these coalitions also helps explain Senate actions affecting a specific issue selected for special case study attention: student aid for higher education. In the context of two different Senates--one controlled by Democrats, the other by Republicans, one before and one after the election of President Reagan, known to be critical of federal aid to education--the potential for major changes in federal programs seemed great. In the first session of the 97th Congress (1981), Yellow Jackets sought major cutbacks in student aid; however, in the second (1982) many of these cuts were moderated or reversed, primarily because of collaboration

between two coalitions of opposing political parties, Gypsy Moths and Bumble Bees. Other students of the 97th Congress suggest that behaviors similar to those found affecting student aid also typified Congress' treatment of other issues. For example, McNeal (1982) observed that in both houses of Congress major changes were initiated during the early months of 97th Congress, but later, in the face of mounting constituency reactions, these were moderated by compromises crafted in committees.

Multi-issue coalitions can also plausibly explain inter- and intraparty relationships, as reflected in the following description of the 97th Senate. The election of 1980 favored President Reagan and "conservative" elements within the Republican Party. Accordingly, the Yellow Jackets might well have emerged as the Senate's leading coalition. They did elect the largest number of new members at the same time that Republicans gained majority control in the Senate, and they were in fact frequent initiators of proposals for major change. However, many of these proposals were quickly opposed by other coalitions. For example, in the early days of the Reagan Administration many Yellow Jackets espoused a plan ("Reaganomics") calling for sharp reductions in domestic spending, sharp increases in defense spending and three successive yearly reductions in federal taxes--even though combined this implied substantially higher budget deficits (Hollings, 1982). Bumble Bees, as we interpret from our findings, opposed the idea because they favored domestic priorities over defense spending; Boll Weevils, though somewhat sympathetic to increased defense spending demurred because they also valued many

existing domestic programs; and Gypsy Moths, traditionally suspicious of expenditures for defense and supportive of several domestic priorities, were hesitant. For reasons such as these, the Yellow Jackets, who did well at the polls, lost influence in the Senate while Gypsy Moths gained influence by becoming catalysts for committee-based compromises.

It is, of course, debatable whether the actions of the Gypsy Moths strengthened or weakened the Republican Party's influence over public policy. Following the 1980 election, had they fully merged with the Yellow Jackets, Republicans would have had enough votes to push through more changes than those actually enacted. On the other hand, such action might have confronted problems of implementation, generated voter backlash, or intensified constituency pressures ultimately discrediting Republican leadership. For whatever reasons, Gypsy Moths chose to play an independent role and to some extent to perpetuate policy themes predating the 1980 election, thus behaving like a political party in their own right. In fact, all the coalitions behaved uniquely. Each had its characteristic pattern of voting.

Journalists have noted structural elements similar to three of the four multi-issue coalitions found in this study and similar ones are suggested by previous studies of the California (McIsaac, 1966) and Wisconsin legislatures (Craven, 1969; Stampen, 1969, 1979). However, even though the existence of elements termed coalitions, blocs, caucuses, or factions in the Congress has long been known (Davidson & Oleszek, 1981), little or no research describing

multi-issue coalitions has been examined in published journal articles.

Our findings generally support and expand upon Schneider's. Nearly all the preceding charts and tables document a political system polarized by Yellow Jacket Republicans and Bumble Bee Democrats. Within the ideological boundaries established by the two polar opposites we find two other coalitions (Gypsy Moths and Boll Weevils) each possessing distinct world views and capable of acting independently.

In explaining the treatment of issues, then, it can be argued that the two "in-between" coalitions are as important as those of the polar extremes, because neither of the polar coalitions alone constitutes a majority. Thus, there are natural incentives for coalitions with important functions and somewhat independent ideologies to form between the polar extreme coalitions. Such behavior provides opportunities for influencing the final content of legislation according to their own values and/or interests.

What of the Clausen-Schneider debate? Our data and procedures do not constitute anything approaching a comprehensive testing of Clausen's methodology and findings. At the same time they suggest that Schneider's unidimensionality is a more fundamental pattern than Clausen's dimensions, at least over the 96th and 97th Congresses. In this respect our study lends support to Schneider's finding, and those of the studies he cites. However, knowing that voting is unidimensional is of limited utility for understanding the treatment

of issues because decisions are the product of committee actions as well as floor votes.

The Senate's treatment of student aid illustrates the limited utility of unidimensionality. Their actions in committee were at least as important as actions on the floor. Furthermore, when we examine the outcome we find little evidence that unidimensionality played a determining role. Instead we find contradictory evidence that decisions about student aid were to a greater extent influenced by an alliance between two coalitions of opposing parties. Indeed this pattern persisted in both Senates despite important structural changes following the election of 1980 and accounts for a large measure of stability in the Senate's support for student aid. McNeal's (1982) findings suggest that a wide variety of issues experienced similar treatment.

The multi-issue coalition appears to be an important, yet overlooked, structural element. Applying the concept of multi-issue coalitions to issues other than student aid may shed new light on the behavior of the legislative process.

## NOTES

1. Schneider cited the following as supportive of unidimensional interpretation of voting behavior: Hoadley (1980); Kritzer (1978); Poole and Daniels (1984); Schneider, J. (1979); Schneider, W. (1982, 1983, 1984); Shaffer (1983); Smith (1981); Stampen and Reeves (1983).
2. Two statistical procedures, principal component (factor) analysis and discriminant analysis (multigroup) were employed in this study. The computer implementation for both techniques was taken from the Statistical Package for the Social Sciences (SPSS), Second Edition.
3. Our use of such a coding scheme to approximate the interval level of measurement follows Kim, Nie and Verba (1977) who examined the analytic alternatives available for users of political participation data which are not inherently arranged along a statistically ideal interval scale.
4. In order to determine the consistency of the results concerning the number and composition of the coalitions, Alberto F. Cabrera, a researcher unfamiliar with the study, employed cluster analysis to group senators according to their voting behavior. The cluster analysis based on complete linkage procedure and squared Euclidian distance (BMDP User Manual, 1980 edition, option 2 M.1 and Clustan version 1c.) yielded results that replicated this study's findings to a substantial degree as reflected by high coefficients of agreement among groupings identified by cluster analysis and the

combination of factor and discriminant analysis (copies of the coefficient of agreement results are available on request).

5. Only limited comparisons between our coalitions and Clausen's policy dimension alignments are possible because of differences in the selection of bills for analysis. Our analysis only includes final floor votes contested by at least 18 percent of those voting, whereas Clausen includes votes on final bills and amendments contested by at least 10 percent. Also, final bills often aggregate many different subjects of legislation, thereby making it difficult to classify individual votes according to individual policy dimensions. More direct comparisons are being made in a follow-up study we are conducting of selected Congresses spanning a twenty-year period.

6. The following persons were interviewed during the course of the study: John Mallan and Polly Brown, American Association of State Colleges and Universities; Alfred Sumberg, American Association of University Professors; Charles Saunders and Patricia Smith, American Council on Education; Peter Gossens, National Association of Independent Colleges and Universities; Jerold Roschwalb and Joel Parker, National Association of State Universities and Land Grant Colleges; Dallas Martin, National Association of Student Financial Aid Administrators; Jan Grassmuck-Lilje, U.S. Senate Budget Committee; David Morse, U.S. Senate Office of Senator Robert T. Stafford.

7. The net change in appropriations for student aid programs administered by the U.S. Department of Education was an increase

from $5.6 billion in 1980 to $6.7 billion in 1983. During the same period, in contrast, Social Security benefits for family-dependent college students, totalling $1.6 billion in 1980, were phased for total elimination by 1985.

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Appendix

Senate Coalitions in the 96th and 97th Congresses:
Final Floor Votes on Bills Classified According to Policy Dimensions
96th Congress

| Bills | Votes (Yea/Nay) | Yellow Jacket | Gypsy Moth | Boll Weevil | Bumble Bee |
|---|---|---|---|---|---|
| **Government Management** | | | | | |
| S.436 (TVA) | (33/58) | N | N | -- | Y |
| S.566 (State & Local Gov't) | (69/23) | N | Y | Y | Y |
| S.1403 (Mining Regs.) | (69/26) | Y | Y | Y | N |
| S.14 (Land Reclamation) | (47/23) | Y | Y | Y | -- |
| S.1398 (Energy Standards) | (43/39) | Y | Y | Y | -- |
| S.1308 (Energy Supplies) | (68/25) | -- | Y | Y | Y |
| HR.4440 (Transportation 80) | (71/26) | -- | Y | Y | Y |
| HR.3919 (Oil Tax) | (74/24) | N | Y | Y | Y |
| HR.5860 (Chrysler Loan) | (53/44) | N | -- | Y | Y |
| HR.3951 (D.C. Transit) | (66/23) | N | Y | Y | Y |
| S.2445 (Dereg Motor Carrier) | (70/20) | Y | Y | -- | -- |
| HJR 521 (Selective Service) | (58/34) | Y | Y | -- | Y |
| HR 7584 (State, Justice, Comm.) | (51/35) | Y | -- | Y | -- |
| **Government Management and Social Welfare** | | | | | |
| HR 2534 (Debt Limit) | (62/33) | N | Y | Y | -- |
| HR 2283 (Wage-Price Council) | (62/22) | N | Y | Y | Y |
| SCR 36 (Budget Revis 80-82) | (62/36) | N | Y | Y | -- |
| HR 5369 (Debt Limit) | (49/29) | N | Y | -- | Y |
| HR 7428 (Debt Limit) | (67/20) | N | Y | Y | Y |
| HJR 562 (Debt Extension) | (54/39) | N | -- | Y | Y |
| HR 7542 (Supplemental 80) | (53/22) | N | Y | Y | Y |
| **Social Welfare** | | | | | |
| S.210 (Dept. Ed.) | (72/21) | -- | Y | Y | Y |
| HR 4389 (Labor-HEW Approp.) | (67/20) | N | Y | Y | -- |
| HR 4394 (HUD Approp.) | (60/25) | N | Y | Y | Y |
| **International Involvement** | | | | | |
| S.622 (Intl. Bank) | (67/24) | N | Y | -- | Y |
| S.3173 (Intl. Security) | (69/21) | -- | Y | N | Y |
| HR.3324 (Intl. Dev. Ast.) | (70/25) | N | Y | -- | Y |
| HR 111 (Panama Canal) | (64/30) | N | Y | -- | Y |
| HR 4473 (Foreign Aid) | (53/38) | N | Y | N | Y |
| S.2012 (Nicaragua & Honduras) | (55/34) | N | Y | N | -- |
| S.2271 (IMF) | (55/25) | N | Y | Y | Y |
| S.2422 (Intl. Dev. Fund) | (53/24) | N | Y | -- | Y |
| H.R. 6942 (For Aid-Peace Corps) | (58/32) | N | Y | -- | Y |

| 96th Senate | Yellow Jacket | Gypsy Moth | Boll Weevil | Bumble Bee |
|---|---|---|---|---|
| **Agricultural Assistance** | | | | |
| S 1125 (Crop Insur.) (64/27) | N | Y | Y | Y |
| **Civil Liberties** | | | | |
| S.450 (Supreme Court Jus.) (61/30) | Y | Y | Y | Y |
| SJR 26 (Presidential Election) (51/48) | N | -- | -- | -- |
| S 1873 (Judicial Conduct) (56/33) | Y | -- | -- | Y |
| H.R. 10 (Rights of Institute) (55/36) | N | Y | -- | Y |
| H.R. 2977 (Domestic Violence) (46/41) | N | -- | -- | Y |

97th Congress

| Bills | Votes (Yea/Nay) | Yellow Jacket | Gypsy Moth | Boll Weevil | Bumble Bee |
|---|---|---|---|---|---|
| **Government Management** | | | | | |
| HR 4144 (Dept. Energy) | (71/22) | Y | Y | Y | N |
| SJR 115 (Alaska Gas) | (75/19) | Y | Y | Y | -- |
| S.1503 (Oil Supplies) | (58/36) | -- | N | Y | Y |
| HR 4961 (Tax Laws) | (50/47) | Y | Y | N | N |
| SJ 58 (Balanced Budget) | (69/31) | Y | Y | Y | N |
| HR 7144 (DC Approp) | (71/22) | N | Y | Y | Y |
| HR 6211 (Gas Tax) | (56/34) | -- | Y | -- | -- |
| **Government Management & Social Welfare** | | | | | |
| HJR 325 (Cont. Approp 82) | (47/44) | -- | Y | N | N |
| SCR 50 (Budget Auth. 82) | (50/47) | Y | Y | Y | N |
| HJR 265 (Debt Limit) | (64/34) | -- | Y | N | -- |
| HJR 519 (Debt Limit) | (49/41) | -- | Y | N | N |
| HR 6682 (Debt Limit) | (59/26) | N | -- | N | Y |
| HJR 357 (Omnibus) | (70/26) | Y | Y | N | N |
| HJR 409 (Cont. Approp 82) | (77/17) | -- | Y | Y | Y |
| S.951 (Dep. Justice) | (57/37) | Y | Y | -- | -- |
| HR 5922 (Supplemental 82) | (73/19) | N | Y | Y | Y |
| S.2774 (Budget 83) | (73/23) | Y | Y | Y | N |
| HJR 520 (Debt Limit) | (50/41) | N | Y | N | -- |
| HJR 599 (Cont. Approp 82) | (72/26) | Y | Y | Y | -- |
| HJR 631 (Cont. Approp) | (63/31) | -- | Y | Y | Y |
| **Social Welfare** | | | | | |
| S 1197 (Housing & Com. Dev.) | (65/24) | Y | Y | Y | N |
| S 1204 (Noise Control) | (40/55) | -- | N | -- | N |
| HJR 370 (Mine Safety) | (60/35) | Y | -- | Y | N |
| HR 5159 (Blacklung Trust) | (63/30) | Y | Y | N | N |
| HR 6863 (Veto Override) | (60/30) | N | -- | Y | Y |
| **International Involvement** | | | | | |
| S.786 (Int'l Dev. Assn.) | (58/32) | N | Y | N | Y |
| S.1195 (Int'l Dev. Bank) | (65/27) | N | Y | -- | Y |
| S.1196 (Foreign Aid 82) | (40/33) | N | Y | N | Y |
| S.1802 (Foreign Asst. 82) | (57/33) | N | Y | N | Y |
| S.2222 (Immigration Laws) | (80/19) | -- | Y | Y | Y |
| HJR 631 (Defense & Foreign) | (63/31) | -- | Y | Y | Y |
| **Agricultural Assistance** | | | | | |
| S.884 (Commodity Price) | (49/32) | Y | Y | -- | N |
| S.6590 (Tobacco Price) | (77/17) | Y | Y | Y | -- |
| **Civil Liberties (None)** | | | | | |

NOTE: The letters Y and N indicate coalitional majorities, greater than two thirds, voting yea or nay. Dashes indicate split votes.

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